

KULISIEWICZ, Jan

1. "On the Development and Perspectives of the Geological Institute of Moscow," Lecture Notes, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630

KULISIEWICZ, Jan

Arrest of hemorrhage from the tracheotomy opening. Otolaryng. Pol.  
18 no.2:313-314 '64.

1. Z Oddziału Laryngologicznego Szpitala Miejskiego w Nowej Hucie  
(Ordynator: doc. dr. S. Sokolowski).

KULISIEWICZ, T.; ZIELINSKA, J.; KOZLOWSKA-KOWARSKA, A.

A case of peripheral neuropathy in familial primary  
amyloidosis. Neurol. neurochir. psychiat. Pol. 14, no. 2:  
243-245 Mr-Apr '64.

1. Z Oddzialu Neurologicznego Instytutu Psychoneurologicznego  
w Pruszkowie (Kierownik Oddzialu: prof. dr med. A. Dowzenko).

KULISIEWICZ, Tadeusz

Present state and future of the development of open therapy in control of alcoholism. Neur. &c. polska 6 no.2:233-243 Mar-Apr 56.

1. Panstwowy Instytut Psychoneurologiczny w Pruszkowie Dyrektor: prof. dr. Z. Kuligowski.

(ALCOHOLISM, prevention and control,  
in Poland, open ther. methods (Pol))

KULISIEWICZ, Tadeusz (Pruszkow K/W-wy, Panstw. Inst. Psychoneurologii)

Modern ambulatory treatment of chronic alcoholism, Polski tygod. lek.  
13 no.4:141-147 27 Jan 58.

1. Z Instytutu Psychoneurologicznego; dyr: prof. dr med. Z. W. Kuligowski.  
(ALCOHOLISM, therapy,  
ambulatory, review (Pol))

WALD, Ignacy; KULISIEWICZ, Tadeusz; WARKOWICKA, Lidia

On possibilities of the evolution of Roussy-Levy's syndrome.  
Neur. &c. polska 10 no.1:1-15 Ja-F '60.

1. Z Oddziału Neurologicznego Instytutu Psychoneurologicznego,  
Kierownik: dr.med. E. Jezewska, Dyrektor: prof.dr. Z. Kuligowski.  
(MUSCULAR ATROPHY)  
(SCOLIOSIS)  
(ATAXIA)

KULISIEWICZ, Tadeusz A.

Evaluation of the effect of Lucidril (ANP 235, centrophenoxine) "Bracco" in some organic nervous diseases and in chronic alcoholism. Pol. tyg. lek. 20 no.26:969-972 28 Ja '65.

1. Z Kliniki Neurologicznej (Kierownik: prof. dr. A. Dowzenko)  
Instytutu Psychoneurologicznego w Pruszkowie (Dyrektor: prof. dr. Z.W. Kuligowski).

BOLIVIA, D.  
HOREJSI, J.; KOSTECKOVA, A.; KULISOVA, D.; PIHRT, J.; TRNKA, F.

Report from the infectious hepatitis ward of the Masaryk Hospital  
in Krca. Cas. lek. cesk. 90 no.31:928-933 3 Aug 1951. (CML 21:1)



BROZDA, Jerzy, mgr inż.; KULISZ, Henryk, mgr inż.

Technological characteristics of Polish-made electrodes. Przeg  
spaw 14 no.8:210-213 Ag '62.

1. Katedra Spawalnictwa, Politechnika Slaska, Gliwice.

KULISZ, Stanislaw; CZECHOWSKI, Zdzislaw; KURCZEWSKI, Zbigniew

Application of wood-oils for the removal of naphthalene from gas pipe lines. Koks 6 no.3:100-102 My-Je '61.

1. Fabryka Rozkladowej Destylacji Drewna, Gryfino(for Kulisz)
2. Wyzsza Szkola Rolnicza, Poznan(for Czechowski)
3. Zaklady Gazownictwa Okregowego, Walbrzych (for Kurczewski)

(Naphthalene)

STARKIEWICZ, Witold, Prof. M.D.; PULISZEWSKI, Tadeusz, Prof. D.Sc.

"The 80 Channel "Elektroftalm"

1. Head of the Chair for Ophthalmology, Pomeranian Med. Acad., Szczecin
2. Head of the Chair for Telecommunication Devices, Wroclaw Tech. Univ.

To be presented at the International Congress on Technology  
and Blindness, New York, 18-22 June 1962.

STARKIEWICZ, Witold; KULISZEWSKI, Tadeusz

The 1st stage in the production of the electrophthalm. Postępy hig.  
med. dosw. 16 no.5:789-806 '62.

1. Z Katedry Okulistyki Pomorskiej AM w Szczecinie. Kierownik: prof.  
dr W. Starkiewicz oraz z Katedry Urządzeń Teletransmisyjnych Politechniki  
Wrocławskiej. Kierownik: dr inż. T. Kuliszewski.  
(BLINDNESS)

KULISZEWSKI, Tadeusz

Podrecznik telotechnika kolejowego [Railroad telecommunications manual] Warszawa,  
Wydawnictwa Komunikacyjne, 1951. 655 p. illus., diagrs., tables. "Wskaz Literatury":  
p. 639-640. At head of title: Biblioteka Komunikacyjna.

55M/6

653

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~~REKISZKILNIA~~

TECHNOLOGY

periodicals: POLSKA, AMERYKA, AMERYKA Vol. 1, no. 2, Sept. 1958

REKISZKILNIA, W. The use of electric and electronic instruments for  
the measurement of nonelectric quantities. Pt. 1, p. 390.

Monthly List of East European Accessions (MEMA) 10 Vol. 1, no. 5  
May 1959, Unclass.

KULITANS, O. Ya., Candidate Agric Sci (diss) -- "The yield and formation of a perennial grass stand as a function of the methods of using it, and mixtures of perennial-grass seed cultivated on mineral soils". Riga, 1959. 37 pp (Min Agric Latvian SSR, Latvian Agric Acad), 200 copies (KL, No 25, 1959, 137)

15

CA  
KULITANS, P.S.

The influence of liming on yields from sandy soils and peat-sand soils in Ramava 1926-30. P. Kulitans. *Acta Univ. Latviensis, Lanksmunskas Fakult. Ser. 2, No. 1-4, 1/44* (in German 55-9) (1931). - The results of field expts. with different crops did not always agree with those of pot expts. on the same soil. In pots the best av. results were obtained with the greater quantity of lime as calculated from hydrolytic acidity (Hutchinson) while best results in the field were with the smaller quantity of lime as calculated from exchangeable acidity (Daikuhara). The Jensen method for detg. lime requirement was unsatisfactory for these soils. The amt. of red clover in mixed grasses on unlimed, fertilized sandy soils (pH 5.43) was greater than that in mixed grasses from the soil after it had been limed according to the calc. requirement (Hutchinson) to give an optimum pH of 6.20-6.6 for red clover. John O. Hardesty

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

12200 117 000 001

12200 117 000 001



KULITANS, P. S.

PA 69T101

USSR/Soil Science  
Chalk

Apr 1948

"Principles and Methods of Dokuchayev in the Study of  
the Soil of Latvia," P. S. Kulitans, 6 pp

"Pochvoved" No 4

Dokuchayev bases much of his theory and conclusions  
regarding soil characteristics on nature of chalk-coal  
deposits of various regions. Investigated factors and  
conditions surrounding process of soil formation or  
'soil formers.' Brief exposition of several methods  
and reliability of data.

69T101

ANDREY, S.; KULITSE, Ch.; SEENCE, R.

Study of the structure and sagging of certain Roumanian  
loesses following wetting. Inzh.-fiz.zhur. 5 no.8:53-61  
Ag '62. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut po stroitel'stvu i ekonomike  
stroitel'stva, Bukharest.  
(Loess)

KULITSKIY, V. [Kulits'kyi, V.]

Institute of Television and Radio Engineering. Nauka i zhyttia  
12 no.5:42-43 My '62. (MIRA 15:7)  
(Poland--Telecommunication--Research)

B/062/63/000/002/006/020  
B144/B186

AUTHORS:

Kulitski, Z. I., Terman, L. M., Tsapalov, V. P., and  
Shlyapintokh, V. Ya.

TITLE:

Determination of the rate constants of initiator decomposition  
and of the initiation efficiency

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh  
nauk, no. 2, 1963, 253 - 257

TEXT: The rate constants of initiator decomposition can be determined from  
the relation between oxidation rate and concentration. The oxidation rates  
of cumol and ethyl benzene containing iso-bis-isobutyro nitrile (I) and di-  
cyclohexyl peroxy dicarbonate (II) as initiators were studied at 60 - 90°C  
in an apparatus described previously (Kinetika i kataliz (1962), no. 6).  
The O<sub>2</sub> absorption-versus-time curves showed that the oxidation rate is con-  
stant at low temperatures, where the initiator concentration remains con-  
stant, but decreases at higher temperatures owing to initiator decomposition.  
The order of the initiation reaction was determined using the equation  
$$-d(O_2)/dt = k_3 k_6^{-1/2} (RH)(e \cdot k_{eff})^{1/2} \cdot (Y)^{n/2} \quad (3)$$
 for the rate of O<sub>2</sub> absorption,  
Card 1/3

Determination of the rate...

S/062/63/000/002/006/020  
H744/B186

where RH is the substance to be oxidized,  $\epsilon$  the initiation efficiency,  $k_{eff}$  the effective rate constant of initiator decomposition,  $Y$  the initiator, and  $n$  the order of the initiation reaction. If

$(Y) = (Y)_0 e^{-k_{eff} t}$  is introduced into (3) under the assumption of a first-order reaction for the decomposition of the initiator,  $\log(-d(O_2)/dt) = \log(-d(O_2)/dt)_0 - k_{eff} t/4.6$  is obtained, where  $(-d(O_2)/dt)_0$  is the initial reaction rate and  $Y_0$  the initial concentration of the initiator. Plotting curves for the time dependence of  $\log(d(O_2)/dt)/(d(O_2)/dt)_0$  established that both initiators decompose in a first-order reaction. The rate constants of initiator decomposition,  $k_{eff}$ , were calculated from this graph. The activation energies were 29.6 kcal/M for II, and 31.2 kcal/M for I. The decomposition rate constants were  $2.71 \cdot 10^{15} e^{-29600/RT}$  for II, and  $2.63 \cdot 10^{15} e^{-31200/RT}$  for I. The initiation efficiency was calculated from the initiation rate and the rate of initiator decomposition. The values

Card 2/3

Determination of the rate...

S/062/63/000/002/006/020  
B144/B186

obtained were 1.1 for I and 1.4 for II. There are 5 figures and 2 tables.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute  
of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: May 14, 1962

Card 3/3

L 17837-63

Pz-k JE/AT

EW(1)/EWG(k)/EWP(q)/EW(m)/BDS/EEU(b)-2

AFTC/ASD/LJP(C)

66

ACCESSION NR: AR3003342

S/0058/63/000/005/E081/E081

SOURCE: RZh. Fizika, Abs. 5E511

AUTHOR: Kulitskiy, V. N.

TITLE: Connection between the relaxation of photoconductivity of semiconductor catalysts and their catalytic activity

CITED SOURCE: Tr. L'vovsk. med. in-ta, v. 22, 1961, 36-42

TOPIC TAGS: photoconductivity, semiconductor catalyst, catalysis, lead oxide, hydrogen peroxide

TRANSLATION: A study was made of the kinetics of the increase and decrease of photoconductivity of specimens of PbO in the form of tablets, and also the catalytic activity of PbO in the reaction of decomposition of  $H_2O_2$ . It was observed that both the increase and the decrease of the photocurrent depend on the time exponentially. Different specimens were characterized either by one relaxation time ( $\tau$ ) or by two ( $\tau_1$  and  $\tau_2$ ). A comparison of the relaxation time ( $\tau_1$  and  $\tau_2$ ) with the catalytic activity (A) of the oxide has shown that a definite correlation exists between  $\tau_2$  and A. No correlation was observed between A and  $\tau_1$ .

Card Yenikev

1/4

27

L 15169-63

EPF(c)/BDS Pr-4 W

ADDITION NR: AR3003343

S 155 AR3003343/EPF(c)/BDS

1. RZh. Fizika, Abs. 55512

54

AUTHOR: Kulitskiy, V. N.

TITLE: Comparison of quantities characterizing the stationary photoconductivity of catalysts with their catalytic activity 1

CITED SOURCE: Tr. L'vovsk. med. in-ta, v. 22, 1961, 43-47

TOPIC TAGS: stationary photoconductivity, catalyst, lead oxide, hydrogen peroxide

TRANSLATION: An investigation was made of the stationary photoconductivity ( $\sigma_0$ ) of PbO and of the catalytic activity of the oxide in the decomposition of  $H_2O_2$ . It has been established that  $\Delta\sigma_0$  increases with increasing illumination  $E$  of the specimens:  $\Delta\sigma_0 = cE^\gamma$  ( $\gamma \approx 0.2$ ), where  $c$  is a coefficient that varies from specimen to specimen. A qualitative connection was observed between the value of  $c$  and the catalytic activity of the oxide. E. Yenikayev

DATE ACQ: 17Jun63

SUB CODE: PH

ENCL: 00

Card 1/1



8/020/63/148/006/021/023  
B190/B102

AUTHORS: Skibida, I. P., Kulitskiy, Z. I., Mayzus, Z. K.

TITLE: Reactivity of isomeric decanols, the intermediates of  
n-decane oxidation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 1963, 1358-1360

TEXT: The reactivity of decanols with hydroperoxides was determined from their consumption when added to the reaction mixture. The pure initial product n-decane was added to the reaction mixture at a certain rate until a stationary concentration  $C_1$  of the intermediate (alcohol) set in. A mixture of decane and 0.205 mole/l of decanol-2 was added at the same rate, whereupon a higher stationary concentration  $C_2$  of the intermediate became established. If, instead of this mixture, mixtures of decanol-4 and subsequently of decanol-5 having the same concentration were added, then the stationary concentration  $C_2$  remained constant. The hydroperoxide concentration also remained constant during the experiments. Hence it

Card 1/2

Reactivity of isomeric decanols, ...

S/020/63/148/006/021/023  
B190/B102

follows that the decanols used exert no effect on the radial concentration in the system and have the same reactivity. The gross velocity of the formation of the alcohols in n-decane oxidation was found to be

$$v_{gr} = 7.4 \cdot 10^{-4} \text{ mole/l min.}$$

There is 1 figure.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: July 28, 1962, by V. N. Kondratyev, Academician

SUBMITTED: July 23, 1962

Card 2/2

S/195/63/004/001/007/009  
E075/E436

AUTHORS: Zhuravlev, V.A., Kulitskiy, V.N.

TITLE: Comparison of the catalytic activity of semiconductor catalysts with the values characterizing their photoconductivity and photoconductivity kinetics

PERIODICAL: Kinetika i kataliz, v.4, no.1, 1963, 109-115

TEXT: The catalytic activity was evaluated by studying the decomposition of  $H_2O_2$  at  $18^\circ C$  using  $PbO$  as catalyst. Samples of  $PbO$  having different activities were obtained by their immersion in  $H_2O_2$  for different times followed by drying. Photoconductivity and catalytic activities were measured for samples of  $PbO$ . Of the various photoconductivity parameters examined in relation to the catalytic activity of  $PbO$  the activity correlated only with the larger values of the photoconductivity relaxation times  $\tau_2$ . The correlation was strong with the coefficient  $r = 0.81$  to  $0.89$ . It was explained within the framework of the electronic theory of catalysis. The molecules of the reacting material are absorbed by the catalyst and are bound on its surface by the current carriers. Alternately the current carriers are trapped by the absorbed molecules. The catalytic reaction follows the desorption

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S/195/63/004/001/007/009  
E075/E436

Comparison of the catalytic ...

of the molecules from the surface, the rate of desorption being proportional to catalytic activity. The probability  $w_0$  of the liberation of an electron from a trap is connected with the probabilities for other traps, which in turn is connected with the relaxation of the photoconductivity. This applies only to "deep" traps, not "small" traps related to shorter relaxation times  $\tau_1$  which do not correlate with the catalytic activity of PbO. There are 3 figures and 3 tables.

ASSOCIATION: L'vovskiy meditsinskiy institut Kafedra fiziki  
(L'vov Medical Institute Department of Physics)

SUBMITTED: June 13, 1961

Card 2/2

KULITZY, G.

Value of excretion pyelography in determining therapy of pyelitis during pregnancy. Magy. noorv. lap. 16 no. 1-2:32-37 Jan 1953.  
(CLML 24:1)

1. Doctor. 2. Obstetric and Gynecologic Department, Robert Karoly-koruti Metropolitan Hospital.

KULITZY, Geza, dr.

Injuries of the bladder and urethra in protracted labor and surgical obstetrics. Magy. noorv. lap. 17 no.3:173-176 May 54.

1. A Robert Karoly krt.-i Fovarosi Korhaz Szulo- es Nobetegosztalyanak kozlemenye (Foorvos: Kulitzzy Geza dr.)

(BLADDER, wounds and injuries,  
in protracted labor & surg. obst.)

(URETHRA, wounds and injuries,  
in protracted labor & surg. obst.)

(LABOR, complications,  
bladder & urethra inj. in protracted labor & obst. surg.)

(PREGNAECY, complications,  
bladder & urethra inj. in obst. surg.)

(WOUNDS AND INJURIES,  
bladder & urethra in protracted labor & obst. surg.)

KULITZY, Geza, MUDr.

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Significance of urological investigations in cancer of the  
cervix uteri. Cesk. gyn. 21 no.3:176-179 Apr 56.

1. Nemocnice Roberta Karoly-ho, porodnicko gynekologicke  
oddeleni, prednosta doc. Dr. Geza Kulitz, Budapest.

(CERVIX, UTERINE, neoplasms  
urography in (Cz))

(URINARY TRACT, radiography,  
in cancer of cervix. (Cz))

KULITZY, Geza, dr.

Significance of urological examinations in cancer of uterine cervix. Magy. noorv. lap. 20 no.1:38-42 Feb 57.

1. A Budapesti Robert Karoly koruti Koskorhaz (igazgato-foorvos: Krasznai, Ivan, dr.) szulo-es nobeteg osztalyanak (foorvos: Kulitz, Geza, dr.) kozlemenye.  
(CERVIX NEOPLASMS, diag.  
urol. exam. (Hun))



KULIVETS', P.K., starshiy mekhanik

We are learning, supporting, and helping. Mekh. sil'. hosp.  
12 no.9:4-5 S '61. (MIRA 14:11)

1. Sovkhoz "Nizhnegorskiy". Nizhnegorskogo rayona, Krymskoy  
oblasti.

(Ukraine--Agricultural machinery)

KULIYEV, A.

Effect of enclosing rocks on the localization of ores as  
revealed by the studies of the Kugitang deposits. Trudy Inst.  
geol. AN Turk. SSR 3:189-199 '60. (MIRA 16:1)

(Kugitang Tau—Ore deposits)

KULIYEV, A.

Hydrochemical characteristics of waters in the Kala, Kirmaki, and  
Supra-Kirmaki sand series of the producing layer in the Neftyanyye  
Kamni deposit. Uch.zap.AGU.Ser.geol.-geog.nauk no.5:115-121 '61.  
(MIRA 16:9)

KULIYEV, A.

Germanium content in sphalerites of some hydrothermal veins. Izv. AN  
Turk. SSR. Ser. fiz.-tekh., khim. i geol. nauk no.1:125-126 '65.  
(MIRA 18:7)

1. Institut geologii Gosudarstvennogo geologicheskogo komiteta SSSR.

KULIYEV, A.; KULIYEV, K.

Genesis of an interstratal fluorite deposit in Gaurdak. Izv.  
AN Turk. SSR. Ser. fiz.-tekh. khim. i geol. nauk no.3:57-62 '65.  
(MIRA 10:12)

1. Institut geologii Gosudarstvennogo geologicheskogo komiteta  
SSSR. Submitted May 22, 1964.

KULIYEV, A. A.

USSR/Petroleum - Drilling Machinery

Jun 49

"Portable Distribution Equipment for Oil-Drilling Operations," M. S. Trifel', A. A. Kuliyeu, 4 pp

"Energet Bpul" No 6

Describes operating features and area of application of four types of distribution equipment now in use: (1) iron semimobile multiple-compartment type, (2) complete mobile type for drilling installations, (3) switch-box type of various design, and (4) metal-clad types. Switch-box type considered easiest to install for drilling operations. Metal-clad explosion-proof type has received wide use recently.

PA 66/49T89

KULIYEV, S.M.; SHAMSIYEV, A.A.; KULIYEV, A.A.

Hydraulic giant drilling [in Azerbaijani with summary in Russian].  
Azerb. neft. khov. 37 no.9:19-21 S '58. (MIRA 11:12)  
(Boring)

KULIYEV, A.A.; SALEKHOV, N.B.

Using air-lift with an air intercepting device at the well head  
in fields of the Oil Field Administration of the Buzovny  
Petroleum Trust. Azerb.neft.khoz. 41 no.2:29-31 F '62.  
(MIRA 15:8)

(Buzovny region--Oil wells--Gas lift)



GASANOV, Kh.B., kand.med.nauk, KULIYEV, A.A.

Occupational therapy in a suburban psychoneurological hospital.  
Azerb.med.zhur. no.4:91-92 Ap '58 (MIRA 11:7)

1. Iz 3-y psikhonevrologicheskoy bol'nitsy gor. Baku (glav-vrach  
A.A. Kuliyeu).  
(PSYCHOTHERAPY)  
(OCCUPATIONAL THERAPY)

KULIYEV, A.A.

Comparative evaluation of treating the chronic form of schizophrenia with blood transfusions in conjunction with other methods. Azerb.med.zhur. no.4:62-65 Ap '59.

(MIRA 12:6)

1. Iz 3 psikhonevrologicheskoy bol'nitsy g.Baku.  
(SCHIZOPHRENIA) (BLOOD--TRANSFUSION)

ACCESSION NR: AR4041540

S/0137/64/000/004/I001/I001

SOURCE: Ref. zh. Metallurgiya, Abs. 412

AUTHOR: Abdullayev, G. B.; Movlanov, Sh.; Shakhtakhtinskly, M. G.;  
Kuliyev, A. A.

TITLE: Investigation of solubility of selenium and mercury in solid tellurium  
and their influence on electrical properties of tellurium

CITED SOURCE: Izv. AN TadzhSSR. Otd. geol. -khim. i tekhn. n., no. 2  
(11), 1963, 13-22

TOPIC TAGS: selenium, mercury, tellurium, solubility, electrical property,  
retrogradation, electrical conductivity

TRANSLATION: Studies solubility of Se in Te (in interval 320-400°) and Hg in  
Te (in intervals 270-440°). Solubility of Hg in Te increases with increase of  
temperature and attains maximum ( $4 \cdot 10^{20}$  atoms per cubic centimeter) at 370°

Card 1/2

ACCESSION NR: AR4041540

and then drops, and at 440° becomes equal to  $1.10^{20}$  atoms per cubic centimeter. Solubility of Se in Te is greater than solubility of Hg in Te. In temperature dependence of solubility of Hg in Te there is observed retrogradation, which is absent in the system Te--Se. There are measured electrical conductivity of alloys Te-Se and Te-Hg in interval from -190° to -150° and the Hall effect at liquid nitrogen and room temperatures. It is found that Hg with a content of ~1% significantly increases electrical conductivity of Te, and Se almost does not change it. Bibliography: 24 references.

SUB CODE: IC, GC

ENCL: 00

Card 2/2

KULIYEV, ALLADIN

USSR/Chemistry - Hydrocarbons

Jan 53

"Alkylation of Cycloparaffins With Olefins," Yu. G. Mamedaliyev, Active Mem Acad Sci Az SSR and Alladin Kuliyeu

DAN SSSR, Vol 88, No 3, pp 471-473

Methylcyclohexane was alkylated with propylene-propane fraction of pyrolysis gases. Data indicates that the catalyst for the reaction is unreacted methylcyclohexane (about 55%). About 70% of the methylcyclohexane entering the reaction is converted into methylisopropylcyclohexane.

265T14

MAMEDALIYEV, Yu.G.: ~~KULIYEV, Aladdin.~~

Prospective use of cyclopentane in the production of aviation fuels.  
(MIRA (8:6))  
Inv. AN Azerb.SSR no.5:67-84 My '54.  
(Airplanes--Fuel) (Cyclopentane)

KULIYEV, A.A.; ABDULLAYEV, G.B.

Studying the diffusion of some metals in seleniu, with the aid of  
radioactive isotopes. Dokl.AN Azerb.SSR 13 no.7:727-731 '57.  
(MLRA 10:7)

1. Institut fiziki i matematiki.  
(Selenium) (Diffusion) (Metals)

KULIYEV, A.A., Gand Chem Sci -- (diss) "Study of diffusion  
in certain semiconductors and ~~of~~ the elasticity of their  
saturated ~~vapours~~ <sup>vapors</sup> ~~by the~~ <sup>by the</sup> radioisotope method." Baku, Pub  
House of Acad Sci AzSSR, 1958, 8 pp (Min of Higher Education  
USSR. Azerbaydz an State Univ im S.M. Kirov) 150 copies  
(KL, h2-58, 113)

- 10 -



SCV/81-59-15-52486

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 15, p 28 (USSR)

AUTHOR: Kuliyev, A.A.

TITLE: The Determination of the Diffusion Coefficient of Some Ions in Selenium by the Method of  $\beta$ -Radiation Absorption

PERIODICAL: Tr. In-ta fiz. i matem. AN AzerbSSR, 1958, Vol 9, pp 5-9

ABSTRACT: The diffusion coefficients (D) of  $\text{Sr}^{90}$ ,  $\text{Fe}^{59}$  and  $\text{Zn}^{65}$  in hexagonal Se with a purity of 99.996% have been investigated. For measuring D the method of a thin layer has been used (RZhKhim 1955, Nr 7, 11351). At 90°C the D of  $\text{Sr}^{2+}$ ,  $\text{Fe}^{3+}$  and  $\text{Zn}^{2+}$  is equal to  $0.2311 \cdot 10^{-13}$ ,  $0.1021 \cdot 10^{-12}$  and  $0.5502 \cdot 10^{-12}$ , and at 150°C  $0.1025 \cdot 10^{-13}$ ,  $0.1615 \cdot 10^{-12}$  and  $0.5939 \cdot 10^{-12}$  cm<sup>2</sup>/sec, respectively. The author explains the lower D value of Sr as compared to Fe and Zn by the higher value of the ion radius of Sr (1.27 Å) compared to Fe and Zn (0.67 and 0.83 Å).

V. Neshpor,

Card 1/1

KULIYEV, A.A.; SHAKHTAKHTINSKIY, M.G.

Studying the pressure of saturated selenium vapor by the use of  
radioactive tracers [in Azerbaijani with summary in Russian].  
Dokl.AN Azerb.SSR 14 no.11:831-834 '58. (MIRA 11:12)  
(Selenium) (Vapor pressure)

AUTHORS: Kuliyeu, A. A., Nasledov, D. M.

57-2-11/32

TITLE: On the Diffusion of Mercury in Selenium (K voprosu o diffuzii rtuti v selen).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 2, pp. 259-261 (USSR).

ABSTRACT: The coefficient for the diffusion of mercury in selenium at various temperatures was immediately determined here according to the method of tagged atoms. The radioactive mercury-isotope  $Hg^{203}$  with a half-life of 47 days was used for this purpose. At first selenium-foils (purity of selenium 99,996%) were produced. For this purpose selenium of a certain thickness (80-100  $\mu$ ) was by means of evaporation in a vacuum applied onto a metal base, then the base was removed by dissolution in hydrochloric acid. The obtained selenium-foils first crystallized at 130°C and then at 200°C during several hours. By means of evaporation the radioactive mercury isotope was then applied onto them. Then the diffusion coefficient of the samples obtained in this manner was determined. The measuring method employed here is one of the variants of the absorption-method suggested by Kryukov and Zhukhovitskiy (reference 3) which is based on the absorption of  $\beta$ -radiation. Its nature consists in the fact that with the displacement of the atoms the activity on the side with

Card 1/3

On the Diffusion of Mercury in Selenium.

57-2-11/32

mercury decreases, whereas on the other side it increases. On the basis of the obtained data

$$\lg \frac{I_1 - I_2}{I_1 + I_2} = f(t) \quad \text{was constructed.}$$

The diffusion-coefficient was calculated from the gradient of the straight line at the respective temperature.  $I_1$  is the intensity of the radiation on the side of the radioactive layer,  $I_2$  - that on the other side,  $t$  is the time of the diffusion annealing. It is shown that  $D = D_0 e^{-E/RT}$

is justified.  $E$  denotes the activation-energy =  $1,2 \cdot 10^3$  kcal/Mol,  $D$  the diffusion coefficient. The data given here, like the papers by other authors, do not yield the possibility of determining the accurate value of the diffusion coefficient and the activation energy due to the complication of the diffusion process by the chemical reaction. This is also indicated by the small value of the activation energy. But the order of magnitude, however, apparently is correctly evaluated.

There are 2 figures, 1 table and 5 references, 4 of which are Slavic.

Card 2/3

On the Diffusion of Mercury in Selenium.

57-2-11/32

ASSOCIATION: Institute of Physics and Mathematics AS Azerbaydzhan SSR (Institut fiziki i matematiki AN Azerbaydzhanskoy SSR. Baku).

SUBMITTED: May 7, 1957.

AVAILABLE: Library of Congress.

1. Mercury-Diffusion

Card 3/3

AUTHORS: Kuliyev, A. A., Shakhtakhtinskiy, M. G. SOV/20-120-6-33/59

TITLE: An Investigation of Saturated Selenium Vapor Pressure Below the Melting Point (Izucheniye uprugosti nasyshchennykh parov selena nizhe tochki plavleniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6, pp 1284 - 1286 (USSR)

ABSTRACT: It is possible to measure the vapor pressure of a substance below its melting point by means of radioactive isotopes. Hence the thermodynamical functions can also be determined in this interval. This is a report concerning the pressure of the saturated vapor of solid selenium in the temperature range 86 - 200°C. The measurements were carried out according to the method of Knudsen. The measuring equipment consisted of a glass balloon which incorporated a furnace for heating, and a crucible containing the substance to be investigated. The experimental procedure is outlined in short. According to the evidence obtained the following equation holds for the dependence of the vapor pressure  $p$  (in mm) of selenium upon temperature:  $\lg p(\text{mm}) = 8,479 - (5061/T)$ . These data agree

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An Investigation of Saturated Selenium Vapor Pressure      SOV/20-120-6-33/59  
Below the Melting Point

with those obtained by other authors.(Refs 3,4). The author expresses his gratitude to G.B.Abdullayev, Corresponding Member, Academy of Sciences, Azerb SSR, for suggesting the subject and for supervising the work. There are 2 figures and 5 references, 2 of which are Soviet.

ASSOCIATION:    Institut fiziki i matematiki Akademii nauk Azerb SSR (Institute of Physics and Mathematics, AS Azerb SSR)

PRESENTED:      March 1, 1958, by V.N.Kondrat'yev, Member, Academy of Sciences, USSR

SUBMITTED:      February 28, 1958

Card 2/3

An Investigation of Saturated Selenium Vapor Pressure      SOV/20-120-6-33/59  
Below the Melting Point

1. Selenium vapors--Pressure      2. Vapor pressure--Measurement      3. Vapor  
pressure--Temperature factors

Card 3/3



5(4)

AUTHORS:

Shakhtakhtinskiy, M. G., Kuliyev, A. A. SOV/20-123-6-31/50

TITLE:

An Investigation of the Pressure of Saturated Vapors of Some Compounds of Thallium (Issledovaniye uprugosti nasyshchennykh parov nekotorykh soyedineniy talliya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1071-1073 (USSR)

ABSTRACT:

The present paper gives the results of the measurement of the pressure of saturated vapors of thallium sulfide and thallious oxide which can be used for the production of thallium-sulphur photoelements. Hitherto, no data have been available concerning the pressure of their saturated vapors and their thermodynamic functions. The authors determined the pressures of the saturated vapors according to Knudsen's method by means of an apparatus which is schematically shown in a figure. The carrying out of the experiment is discussed in short. For  $Tl_2S$ , the extrapolation of the found experimental dependence of  $\lg P$  upon the reciprocal temperature up to 760 torr gives a boiling point which is by far lower than that of  $Tl_2O_3$ . The boiling point of the sublimated substance was similar to that of  $Tl_2O$ . This fact proves the

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An Investigation of the Pressure  
of Saturated Vapors of Some Compounds of Thallium

SOV/20-123-6-31/50

conversion of  $Tl_2O_3$  into  $Tl_2O$ . A diagram shows the results of the measurements of the pressure of saturated  $Tl_2O$  vapors.

From the inclination of the curve the sublimation heat was calculated. The evaluation of the experimental data according to the method of the least squares gives  $\lg P(\text{mm}) = 11.51 - (6612/T)$  where T denotes the absolute temperature. The above-mentioned diagram gives also the results of the measurements of the vapor pressure of  $Tl_2S$ . The pressures of the saturated vapors found

from both of the components ly on the same straight line. This fact shows that  $TlS_2$  is not decomposed during its evaporation. The temperature dependence of the pressure of saturated vapor  $\lg P$  satisfies the equation  $\lg P(\text{mm}) = 7.345 - 4484/T$ . The sublimation energy was equal to 20.45 kcal/grad.mol. The sublimation heats of  $Tl_2S$  and of its individual components have very different values. This fact offers the possibility of

Card 2/3

An Investigation of the Pressure  
of Saturated Vapors of Some Compounds of Thallium

SOV/20-123-6-31/50

purifying  $Tl_2S$  by vacuum sublimation. There are 2 figures  
and 7 references, 6 of which are Soviet.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk AzerbSSR  
(Institute of Physics and Mathematics of the Academy of Sciences,  
Azerbaydzhanskaya SSR)

PRESENTED: July 23, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: July 21, 1958

Card 3/3

527/4966

PLATE 1 BOOK EMPLOYMENT

- Sovetskaniye po poluprovodnikovym materialam. Moscow, 1957
- Voprosy metallurgii i fiziki poluprovodnikov: trudy 3-go sovetskaniya. (Problems in Metallurgy and Physics of Semiconductors; Transactions of the Third Conference) Moscow, Izdatel'stvo M. SSSR, 1959. 129 p. Extra slip inserted. 3,200 copies printed.
- Sponsoring Agency: Akademiya nauk SSSR, Institut metallurgii i fiziki poluprovodnikov. Resp. Ed.: M. Kh. Abrizov, Doctor of Chemical Sciences; Ed. of Publishing House: P. P. Kozlov.
- PURPOSE: This collection is intended for technical and scientific personnel concerned with the investigation and production of semiconductor materials. It may also be used by students in schools of metallurgy.
- COVERS: The collection contains reports submitted at the Third Conference on Semiconductors, held at the Institute of Metallurgy, Academy of Sciences, USSR, Moscow, in May 1957. The reports deal with problems of obtaining and investigating germanium, silicon, and semiconductor compounds. The collection was first edited by D. A. Petrov, Doctor of Technical Sciences. References accompany most of the reports.
- Editor: V. P. On the Problem of the Role of Some Factors in the Growth Process of Single Crystals from a Melt 21
- Tolpygo, E. B. Investigation of Hole Zones of Diamond-Type Crystals in the Process of the Multicrystalline Theory 29
- Selgeti, Academician (Academy of Sciences, Hungarian People's Republic). Concerning the Problem of Semiconductor Point-Contacts 40
- Majewski, Z. (Institute of Basic Technical Problems, Polish Academy of Sciences). Properties of P-N Junctions in Germanium Single Crystals Withdrawn from the Melt by Pulling 43
- Somovskiy, L. (Institute of Physics, Polish Academy of Sciences). Effect of the Introduction of Minority Current Carriers on Light Emission from Germanium 49
- Bury, A. A., V. Ye. Kozlov, and Ye. G. Maslupuk. Diffusion and Solubility of Iron and Silver in Germanium 52
- Vyatkin, A. P., and V. A. Pramenov. Investigation of Moistening of Semiconductors with Seals 57
- Vasilievskiy, V. M., and Ye. G. Maslupuk. Investigation of Segregation and Solubility of Some Impurities in Germanium During Crystallization from the Melt 62
- Treval (Institute of Technical Physics, G. S. Zhukovskiy Academy of Sciences). Problems of Obtaining Pure Silic 68
- Petrov, D. A., Ye. M. Chachkov, V. V. Romashovskiy, and V. D. Ervashnikov. Etching of Silicon Single Crystals 69
- Etching Technology (Institute of Applied Physics, Chinese People's Republic). Importance of Using Pure Water for Washing Materials Used in Semiconductor Engineering 78
- Abdullayev, G. B., M. I. Aliyev, A. A. Bakhvaliyev, and G. M. Aliyev. Effect of Halide Impurities on the Physical Properties of Selenium 80
- Abdullayev, G. B., G. A. Abdullayev, A. A. Aliyev, and Z. A. Aliyev. On the Diffusion of Certain Metals in Polycrystalline Selenium 89
- Dobkin, L. D., and E. Kh. Abrizov. Problems of Alloying Semiconductors with Arsenic 94
- Mishchenko, I. B., M. I. Vityazevskiy, and V. D. Puzanov. Effect of Thermal Conditions of Single Crystals of CdS and CdTe on Their Physical Properties 107
- Profimanov, A. P., and G. A. Fedorov. Effect of Tempering and Certain Impurities on the Dark Resistance and Photosensitivity of CdS Single Crystals 112
- Kalman, I. (Institute of Technical Physics, Czechoslovak Academy of Sciences). Semiconductor Compounds with an Excess of One of the Components 117
- Smirnov, V. P. Effect of Surface Conditions on the Electrical Properties of Type II-VI Compounds 120
- Prasov, V. A., M. A. Krivov, V. M. Vityazevskiy, A. G. Gerasimov, and Ye. V. Melnikov. Production and Investigation of New Semiconductor Materials 127

25/47/56  
V/5/51

Card 5/5  
AVAILABLE: Library of Congress

KULIYEV, A.A.; ABDULLAYEV, G.B.

Investigation of the diffusion of Zn and Se in  $\text{Bi}_2\text{Se}_3$ ,  $\text{BiSe}$ , and  
CdSb. Fiz. tver. tela 1 no.4:603-605 '59. (MIRA 12:6)

1. Institut fiziki i matematiki AN Azerbaydzhanskoy SSR.  
(Diffusion) (Semiconductors)

24.7500

-24(6)

67298

AUTHOR:

Kuliyev, A.A.

SOV/181-1-8-3/32

TITLE:

On the Diffusion of Some Impurities in Bi<sub>2</sub>Se<sub>3</sub> and ZnSb

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 8, pp 1176-1178 (USSR)

ABSTRACT:

The present paper deals with the determination of the diffusion coefficients of iron and cadmium in Bi<sub>2</sub>Se<sub>3</sub> and ZnSb. In order to investigate diffusion of several elements in these binary compounds the authors produced Bi<sub>2</sub>Se<sub>3</sub> and ZnSb by direct fusion of the respective elements, viz. on the basis of the phase diagrams supplied by M. Khansen (Ref 4) for Bi-Se and Zn-Sb. On this occasion pure elements with several impurities were used. Sample preparation is briefly described. The order of the experiments is given. After heat treatment atoms of the required elements were electrodeposited on the one base face of the samples. Fe-59 and Cd-114 tracer atoms were used in order to investigate the atomic displacement. The samples thus produced were then subjected to a 50 to 70 hours' diffusion annealing at constant temperature in vacuum and subsequently were cooled down. The diffusion coefficient of these elements in Bi<sub>2</sub>Se<sub>3</sub> and ZnSb was then determined by successive removal of

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On the Diffusion of Some Impurities  
in  $\text{Bi}_2\text{Se}_3$  and  $\text{ZnSb}$

SOV/181-4 -8-3/32

the layers. Amount of diffused substance was determined from the radiative intensity by means of a B-2 type device. The results of these experiments are illustrated in two diagrams. In all cases, diffusion coefficient is an exponential function of temperature. The following holds for the temperature dependence of the diffusion coefficient:

Iron:  $D_{\text{Fe} \rightarrow \text{Bi}_2\text{Se}_3} = 1.25 \cdot 10^{-7} e^{-10980/RT} \text{ cm}^2/\text{sec}$

$D_{\text{Fe} \rightarrow \text{ZnSb}} = 2.23 \cdot 10^{-9} e^{-6080/RT} \text{ cm}^2/\text{sec}$

Cadmium:  $D_{\text{Cd} \rightarrow \text{Bi}_2\text{Se}_3} = 1.39 \cdot 10^{-3} e^{-21320/RT} \text{ cm}^2/\text{sec}$

$D_{\text{Cd} \rightarrow \text{ZnSb}} = 2.80 \cdot 10^{-10} e^{-3890/RT} \text{ cm}^2/\text{sec}.$

In the temperature interval investigated the diffusion coefficient is only slightly temperature dependent which fact speaks for the structure-sensitivity of diffusion. Comparison between the present data and those obtained by Boltaks shows that activation energy does not immediately depend on the

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On the Diffusion of Some Impurities  
in  $\text{Bi}_2\text{Se}_3$  and  $\text{ZnSb}$

SOV/181-1-8-3/32

atomic radius. This is caused obviously by the different mechanism of shifting. A dependence between activation energy and the melting temperatures of bismuth selenide and of zinc antimonide is also observed. The author thanks Professor G.B. Abdullayev for having suggested the problem and for his discussion of the results, as well as S.M. Nagiyeva for her assistance in the measurements. A patent by Poganski concerning this subject is mentioned in this paper. There are 2 figures and 6 references, 5 of which are Soviet.

ASSOCIATION: Institut fiziki i matematiki AN Azerb. SSR, Baku (Institute of  
Physics and Mathematics of the AS of the Azerbaydzhanskaya  
SSR, Baku)

SUBMITTED: July 28, 1958

Card 3/3



KAZHLYAYEVA, R.I.; ABDULLAYEV, G.B.; KULIYEV, A.A.

Vaporization of selenium in a vacuum [in Azerbaijani with summary  
in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekhn. nauk. no.3:  
39-44 '59 (MIRA 13:3)  
(Selenium)

KASHERININOV, G.O.; LEVINSKIY, M.I.; STANKEVICH, V.A.; KOVTUN, T.D.;  
BELYAYEVA, I.I.; POPOV, Ye.I.; SMIRNOV, N.S.; SHAKHTAKHTINSKIY,  
M.G.; KULIYEV, A.A.

Brief reports. Zav.lab. no.11:1403-1404 '59. (MIRA 13:4)

1. Institut Gipronikel' (for Kasherininov). 2. Institut goryu-  
chikh iskopayemykh (for Belyayeva, Popov Smirnov). 3. Institut  
fiziki i matematiki Akademii nauk Azerbaydzhanskoy SSR (for  
Shakhtakhtinskiy, Kuliyeu).  
(Chemical apparatus)

KULIYEV, A.A.; ABDULLAYEV, G.B.

Diffusion of some elements in ZnSb and CdSb. Dokl.AN Azerb.SSR 15 no.1:  
9-11 '59. (MIRA 12:3)  
(Cadmium antimonide) (Zinc antimonide) (Diffusion)

5(4)

SOV/26-125-1-32/67

AUTHORS: Kuliyev, A. A., Rozlovskiy, A. I.

TITLE: A New Method of Investigating Adiabatic Inflammation and Its Application to a Chlorine-hydrogen Mixture (Novaya metodika izucheniya adiabaticheskogo vosplavleniya i yeye primeneniye dlya khlora-vodnorodnoy smesi)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 122-125 (USSR)

ABSTRACT: Ya. T. Gershanik, Ya. B. Zel'dovich and A. I. Rozlovskiy (Ref 1) suggested a new method of adiabatic compression of combustible mixtures by a fast current of gas. The mixture to be studied (which is contained in a unilaterally soldered glass tube at a pressure below atmospheric pressure) is compressed by atmospheric air which flows in as soon as the stopper of the glass-tube breaks off. By employing this method the final pressure of the compression is 1 atmosphere. For the purpose of improving the method the authors suggested a simple device in which the final pressure may be changed in any way up to atmospheric pressure. The compression chamber and the inflammation chamber are interlinked by tearing the separating membrane. The mixture is compressed in a tube

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SOV/20-125-1-32/67

A New Method of Investigating Adiabatic Inflammation and Its Application to a Chlorine-hydrogen Mixture

1.3 m long and 18.3 mm thick. The experiments were made with a mixture of 70%  $\text{Cl}_2$  + 30%  $\text{H}_2$ . The temperature  $T_a$  of the adiabatic compression was measured according to Poisson's equation. The first diagram illustrates the dependence of the critical temperature of inflammation  $T_k$  on the final pressure at constant  $p_0 = 92$  torr and at a diameter of  $\Delta = 5.7$  mm in the coordinates  $\lg(p_a/T_a) \sim 1/T_a$ . The second diagram illustrates the dependence of the inflammation temperature  $T_k$  on  $\lg \Delta^2$  or (in experiments without retardation) on  $\lg D^2$  at  $p_a = 600$  torr. A variation of  $D$  practically does not affect the critical conditions in the compression by an unretarded flow. Consequently, a "supercompression" does not cause any distortions in this case. In experiments with a retarding tube  $T_k$  considerably decreases with increasing cross section of the tube and approaches the value of  $T_k$  in the case of an unretarded

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SOV/20-125-1-32/67

A New Method of Investigating Adiabatic Inflammation and Its Application to a Chlorine-hydrogen Mixture

flow. During the retardation the heat losses increase the apparent temperature of inflammation, and the compression approaches the adiabatic compression with increasing  $\Delta$ . The third diagram illustrates the dependence  $T_k(p_0)$  at  $p_a = 300$  torr and  $\Delta = 5.7$  mm. Accordingly, even at small  $p_0$  values there are deviations from the conditions of adiabatic compression, which decrease with increasing  $p_0$  values. The inflammation in a plane-parallel container is then calculated. The authors ascertain the steady distribution of temperature along the tube at given temperature on the walls and along the axis of the container. The approximate solution of the problem is explicitly written down. This solution, which does not take into account the fact that the process is practically unsteady, may be confirmed also by another method of approximation (which is independent of the method under review). There are 3 figures and 16 references, 10 of which are Soviet.

Card 3/4

A New Method of Investigating Adiabatic Inflammation and Its Application  
to a Chlorine-hydrogen Mixture

SOV/2c-125-1-32/67

ASSOCIATION: Institut fiziki i matematiki Akademii nauk AzerbSSR  
(Institute of Physics and Mathematics of the Academy of  
Sciences, Azerbaydzhan SSR)

PRESENTED: November 21, 1958, by Ya. B. Zel'dovich, Academician

SUBMITTED: November 12, 1958

Card 4/4

00023

5.4210

S/126/60/009/02/008/033

AUTHORS: Shakhtakhtinskiy, M.G. and Ruliyev, A.A. <sup>E111/E335</sup>

TITLE: Investigation of the Saturated Vapour Tensions of  
Thallium Selenides 1

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 2,  
pp 202 - 204 (USSR)

ABSTRACT: The aim of the work was to measure the vapour tension of the compounds and to discover any possible dissociation in the solid phase by measuring the vapour pressure. 7 Vapour tension was measured by an effusion method using radioactive isotopes, on compounds prepared from 99.996% pure thallium and selenium. Measurements were made using both radioactive selenium and thallium separately. From the results of the experiment a graph of log. vapour tension against inverse temperature was drawn (Figure 1). Vapour-pressure measurements for TlSe 1 and Tl<sub>2</sub>Se gave the same result, whether Tl or Se was used as the tracer. It was concluded that no dissociation occurred in the solid state in these substances. A similar result was obtained for Tl<sub>2</sub>Se<sub>3</sub> up to 400 °C. Above this temperature, the ✓

Card1/2



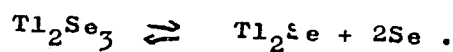
68623

S/126/60/009/02/008/033

Investigation of the Saturated Vapour Tensions of Thallium  
Selenides

E111/E335

value of the vapour pressure was similar to that of  $Tl_2Se$  when Tl was used as a tracer. From further measurements it was shown that dissociation occurs as follows:



A calculation of the heat of sublimation for the compounds gave the results:  $Tl_2Se$  26.90 kcal/g.mol;  $TlSe$  30.84 kcal/g.mol and  $Tl_2Se_3$  33.97 kcal/g.mol.

There are 1 figure and 6 Soviet references.

ASSOCIATION: Institut fiziki AN Azerb. SSR  
(Institute of Physics of the Ac.Sc., Azerbaidzhan SSR)

SUBMITTED: May 13, 1959

Card 2/2

ABDULLAYEV, G.B., SHAKHTAKHTINSKIY, M.G., KULIYEV, A.A.

Studying the elasticity of saturated vapors of the system Se -  
Te. Dokl.AN Azerb.SSR 16 no.3:219-222 '60. (MIRA 13:7)

1. Institut fiziki AN AzerSSR.  
(Selenium) (Tellurium)

S/131/62/000/002/001/1  
A006/A101

AUTHORS: Shakhtakhtinskiy, M. G., Kuliyeu, A. A., Abdullayev, G. B.  
TITLE: Investigating the tension of saturated vapors of some selenides by the radio-isotope method  
PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1962, 5, abstract 2A20 (V sb. "Vopr. metallurgii i fiz. poluprovodnikov". Moscow, AN SSSR, 1961, 38-42)

TEXT: The investigation was carried out by the Knudsen method. A schematic diagram of the device is given. With the aid of this device it is possible to determine the vapor tension at various temperatures without disturbing the vacuum. For a synthesis of selenides, Se, Tl and Sb of 99.99% purity were placed into a quartz ampoule which was evacuated to  $10^{-4}$  mm Hg. Each compound was prepared twice with active  $\text{Se}^{75}$ ,  $\text{Tl}^{204}$  or  $\text{Sb}^{124}$ . Vapor tensions of compounds  $\text{TlSe}$ ,  $\text{Tl}_2\text{Se}$  and  $\text{Sb}_2\text{Se}_3$ , measured over both components, have equal values, i.e. during evaporation of these substances, there is no dissociation in the solid phase. The same agreement of values is observed for  $\text{Tl}_2\text{Se}$  up to  $200^\circ\text{C}$ . It is supposed that  $\text{Tl}_2\text{Se}_3$  dissociates according to the scheme  $\text{Tl}_2\text{Se}_3 \rightarrow \text{Tl}_2\text{Se} + 2\text{Se}$  ✓

Card 1/2

investigating the tension of saturated ...

S/137/62/000/002/001/144  
A006/A101

Vapor tension  $p$  as a function of temperature  $T$  is described by the following equations: for  $Tl_2Se$   $l_{gp} = - (5880.9/T) + 9.8052$ ; for  $TlSe$   $l_{gp} = - (6742.2/T) + 12.443$ ; for  $Tl_2Se_3$   $l_{gp} = - (7425.5/T) + 9.2481$ ; for  $Sb_2Se_3$   $l_{gp} = - (6432.3/T) + 8.7906$ . Calculation of sublimation heats for the aforementioned compounds yields the following values in kcal/g-mole:  $Tl_2Se$  26.905;  $TlSe$  30.845;  $Tl_2Se_3$  33.972,  $Sb_2Se_3$  29.589. ✓

T. Kolesnikova

[Abstracter's note: Complete translation]

Card 2/2

S/081/62/000/007/001/033  
B156/B101

AUTHORS: Shilkin, A. I., Kuliyev, A. A.  
TITLE: Monocrystals of tellurium grown by pulling from melts  
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 7, 1962, 36,  
abstract 7B209 (Izv. AN AzerbSSR. Ser. fiz.-matem. i  
tekhn. n., no., 1, 1961, 57-59)

TEXT: Large monocrystals (~ 5 cm long) of Te, grown by pulling from a melt, have been produced. A special apparatus has been constructed, in which monocrystals of Te are grown in ampoules. The initial Te was purified five times by distillation in a vacuum, and then placed in a vacuum (~  $10^{-4}$  mm Hg) ampoule. The ampoule was inserted into a tube furnace, in which the temperature was kept 2-3°C above the melting point of Te. By means of a special device the ampoule was drawn through the furnace at 0.2 mm/min. The product, which was almost monocrystalline, was first used as a seeding substance and employed for the usual procedure of pulling monocrystals from melts. The pulling rate was

Card 1/2

APPROVED

Monocrystals of tellurium grown ...

S/081/62/000/007/001/033  
B156/B101

0.4-0.5 mm/min, and the specimen was rotated at 6 rpm. A new seed base was then prepared from the specimen and the pulling procedure repeated 3 times; the result was a large, perfect monocrystal. The monocrystallinity and structural perfection were confirmed by cleaving, also radiographically (by Laue diffraction patterns). The purity of the crystals obtained was > 99.9999%. [Abstracter's note: Complete translation.]

Card 2/2

S/137/62/000/003/050/191  
A006/A101

AUTHORS: Movlanov, Sh., Kuliyev, A. A.

TITLE: On the coefficient of mercury distribution during tellurium crystallization

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 25 - 26, a' tract 3G166 (Izv. AN AzerbSSR, Ser. fiz.-matem. i tekhn. n", 1961, no. 3, 55 - 62, Azerb. summary)

TEXT: The authors studied zonal recrystallization of Te with Hg admixture. The effective coefficient of Hg distribution in Te was calculated (with the aid of radioactive isotope  $Hg^{203}$ ) at different rates (16, 11 and 2 mm/hour) of molten zone shift. The equilibrium coefficient of Hg distribution in Te is equal to 0.11. It is shown that in zonal recrystallization the Hg content in Te is reduced by over 100 times after three passes. The effectiveness of Te refining from Hg increases when zonal recrystallization is carried out in a flow of  $H_2$ . There are 15 references.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

20085

S/181/61/003/009/017/039  
B102/B104

247000

1043 1144 1385

AUTHORS:

Tagirov, V. I., and Kuliyeu, A. A.

TITLE:

Study of the distribution coefficients of tantalum in germanium on its crystallization

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2569 - 2671

TEXT: The distribution of the elements of group V in germanium has hitherto been insufficiently studied although the knowledge of these rules is of scientific and technical interest. The Ta distribution in Ge has not been studied at all. The authors studied the distribution of Ta<sup>182</sup> in Ge. Using the method by Burton et al. the authors determined the effective distribution coefficient of Ta during the crystallization of Ge as a function of the growth rate of the single crystal.  $K_{eff}$  was calculated by the equation  $K_{eff} = K_0 / [K_0 + (1-K_0) \exp(-v\delta/D)]$  where  $K_0$  is the equilibrium distribution coefficient,  $v$  the growth rate,  $D$  the diffusion coefficient of the impurities in the liquid,  $\delta$  the layer

Card 1/3

2085

S/181/61/003/009/017/039

B102/B104

Study of the distribution coefficients...

thickness in the melt near the crystallization front. The authors used 2.5 g of pure germanium (resistivity 50 ohm.cm) which was melted together with 5 mg of Ta<sup>182</sup> (specific activity 1000 mcuries/g) in a quartz ampul at 10<sup>-4</sup> mm Hg and at 1000°C. In order to safeguard maximum even distribution it was kept in liquid state for a certain time and then well mixed. The thus obtained ligature was used for alloying pure Ge with Ta<sup>182</sup>. The pure Ge was melted together with the ligature and the single crystals were then grown from the melt. First, the authors determined the dependence of the absorption of tantalum emission in germanium on the amount of germanium by a comparison with a standard specimen. It was found that absorption (in % of the maximum activity) exponentially decreased with increasing specimen weight. A study of the activity distribution along the specimen showed that the activity exponentially increased with increasing distance from the primary crystallization front. The main part of the tantalum impurity accumulated at the end of the specimen.  $K_{eff}$  as a function of the growth rate of the Ge single crystal proved to be a weakly nonlinearly increasing function and  $\ln(1/K_{eff} - 1)$  as a function of

Card 2/3



Study of the distribution coefficients...

28085

S/181/61/003/009/017/059

B102/B104

v proved to be a descending straight intersecting the ordinate. The distance between point of intersection and origin is  $\ln(1/K_0 - 1)$  from which the coefficient of equilibrium distribution was calculated to be 0.008. There are 4 figures and 2 non-Soviet references. They read as follows: J. A. Burton, R. C. Prim, W. P. Slichter, J. Chem. Phys., 21, 11, 1987, 1953. J. A. Burton, E. D. Kolb, W. P. Slichter, J. D. Struthers, J. Chem. Phys., 21, 11, 1991, 1953.

ASSOCIATION: Institut fiziki AN AzSSR Baku (Institute of Physics of the Azerbaydzhanskaya SSR, Baku)

SUBMITTED: April 10, 1961

Card 3/3

3/181/61/003/011/012/056  
0102/B138

26.2421

AUTHORS: Ibragimov, N. I., and Kuliyeu, A. A.

TITLE: Electrical migration of thallium in polycrystalline selenium

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3330 - 3335

TEXT: The authors studied the temperature dependence of the Tl ion mobility in polycrystalline Se between 100 and 215°C. Electrical migration of impurity ions in semiconductors lowers the quality of p-n junctions and is therefore of great interest. The authors chose amorphous selenium, as used in rectifiers, for their investigations. The selenium was pressed at 6 - 7 tons/cm<sup>2</sup> into cylindrical compacts from which films 100 μ thick were cut. Diffusion and electrical migration were studied on polished cylinders 10 mm long and 6.5 mm in diameter. A thin layer of Tl<sup>204</sup> was deposited on one end of each cylinder. Then with these ends together the pieces were fastened in a porcelain-insulated holder and the system was evacuated to 10<sup>-4</sup> mm Hg and placed in an

Card 1/3

X

Electrical migration of thallium ...

30778  
S/81/61/003/011/012/056  
B102/B138

ultrathermostat (temperature kept constant to  $\pm 0.2^{\circ}\text{C}$ ). Migration was studied in a field of 10 vcm (300  $\mu\text{a}$ ). The extent of migration was determined from the activity of the 8-10 $\mu$  thick layers removed. The diffusion coefficient D was found from the relation between activity and Tl<sup>204</sup> concentration:  $I(x, t) \sim C(x, t) = C_0(1 - \text{erf} \frac{x}{2\sqrt{Dt}})$  where  $C_0$  is the initial concentration, x the depth of diffusion and t the diffusion annealing time, which was at 100 - 215 $^{\circ}\text{C}$ . D was found to be between  $3.8 \cdot 10^{-13}$  and  $6.2 \cdot 10^{-11} \text{ cm}^2/\text{sec}$ , its temperature dependence can be described by the relation:

$D_{\text{Tl} \rightarrow \text{Se}} = 2.9 \cdot 10^{-3} \exp(-0.73 \text{ eV}/kT) \text{ cm}^2/\text{sec}$ . Activation energy was found to be 1.5 times as high as in selfdiffusion. Investigation of the influence of electric field on Tl diffusion showed that Tl migrates mainly towards the cathode. Migration also decreases with decreasing field strength. The fact that the temperature dependence of the ion mobility was just the same as the temperature dependence of the diffusion constant indicates that diffusion and electrical migration are of the same nature.

Card 2/3

Electrical migration of thallium ...

5/10/61/003/011/012/056  
B102/B138

From charge measurements it was found out that Tl migrates in Se as  $Tl^{3+}$ . The ionization energy was determined to 0.79 eV, a value, which is similar to the activation energy of diffusion. The authors thank Professor G. B. Abdullayev for comments and interest. There are 3 figures, 1 table, and 18 references: 14 Soviet and 4 non-Soviet. The reference to the English-language publication reads as follows: H. A. Bethe. NDRC Rep., 43-12 (Publication Board U.S. Dept. Commerce, Decemb., 1942).

ASSOCIATION: Institut fiziki AN Azerb. SSR Baku (Institute of Physics of AS Azerbaydzhanskaya SSR, Baku)

SUBMITTED: May 24, 1961

Card 3/3

X

MOVLANOV, Sh.; KULIYEV, A.A.

Diffusion of selenium and mercury in liquid tellurium. Izv.AN  
Azerb.SSR.Ser.fiz.-mat.i tekhnauk no.6:49-55 '61. (MIRA 15:4)  
(Diffusion)

SHILKIN, A.I.; KULIYEV, A.A.

Apparatus for growing tellurium single crystals by pulling from the melt. Prib.1 tekhn.eksp. 6 no.5:172-174 S-0 '61.

(MIRA 14:10)

1. Institut fiziki AN AzSSR.

(Tellurium) (Crystallization)

S/137/61/000/012/073/149  
A006/A101

AUTHORS: Movlanov, Sh., Kulihev, A.A.

TITLE: The factor of tin distribution in antimony selenide

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 52-53, abstract 120370 (Dokl. AN AzerbSSR, 1961, v. 17, no. 4, 275-278, Azerb. summary)

TEXT: The method of radioactive isotopes was employed to determine the factor of Sn-distribution in  $Sb_2Se_3$ . A  $Sn^{113}$  radioactive isotope was employed.  $Sb_2Se_3$  specimens were synthesized in a stoichiometric ratio from initial Sb (99.996%) and Se (99.994%) in ampoules which were preliminarily evacuated to  $10^{-4}$  mm Hg. The ampoule was slowly heated to  $900^\circ C$  with a 2-hour interruption at  $250^\circ C$  and a 3-hour one at  $650^\circ C$ . The ampoule was held for 13 - 16 hours at  $900^\circ C$  and then cooled to room temperature at a rate of 100 degrees/hour. The ingots obtained were subjected to 10-fold zonal refining in  $N_2$  atmosphere; the electric conductivity of the specimens changed from about  $10^{-5}$  to  $\sim 10^{-7}$  ohm $^{-1}$  cm $^{-1}$ . The zonal refined  $Sb_2Se_3$  was alloyed with 0.004%  $Sn^{113}$  at  $700^\circ C$  for 35 hours; the uniformity of Sn distribution over the specimen was checked and then

Card 1/2

The factor of tin distribution ...

S/137/61/000/012/073/149  
A006/A101

zonal recrystallization was performed with up to 10 passes. The temperature in the zone was  $670^{\circ}\text{C}$ . To determine  $\text{Sn}^{113}$  in the specimen perpendicularly to the ingot axis 200 - 300  $\mu$  thick layers were taken off and the intensity of radiation in these layers was determined. The factor of Sn distribution in  $\text{Sb}_2\text{Se}_3$  was 0.8. The effective Sn diffusion factor in liquid  $\text{Sb}_2\text{Se}_3$   $D = 1.56 \cdot 10^{-3}$   $\text{cm}^2/\text{sec}$ . It is shown that refining of  $\text{Sb}_2\text{Se}_3$  from Sn was relatively difficult. The lower the concentration of admixtures in  $\text{Sb}_2\text{Se}_3$ , the lesser effective its zonal refining. ✓

B. Turovskiy

[Abstracter's note: Complete translation]

Card 2/2



MOVLANOV, Sh.; ABDULLAYEV, G.B.; BASHSHALIYEV, A.; KULIYEV, A.; KERIMOV, I.

Some properties of antimony telluride single crystals. Dokl. An.  
Azerb. SSR 17 no.5:375-379 '61. (MIRA 14:6)

1. Institut fiziki, sektor fiziki i matematiki Akademii nauk  
Tadzhikskoy SSR.

(Antimony telluride)

24 7000

40483

S/233/62/000/001/001/001  
1033/1233

AUTHOR: Tagirov, V. I., and Kuliyeu, A.A.

TITLE: Diffusion of tantalum in germanium crystals

PERIODICAL: Akademiya nauk Azerbaydzhanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 1, 1962, 65-68

TEXT: The diffusion coefficient of  $Ta^{112}$  in single germanium crystals was investigated by slicing off thin layers. Samples were annealed for 15 to 60 hours. Diffusion experiments were carried out between 750-900°C and 800-900°C; the specific resistances of the samples were 10 and 45 ohm-cm, respectively. Values of diffusion coefficients are:

$$\begin{aligned} D_p = 10 \text{ ohm}\cdot\text{cm} &= 2.5 \times 10^{-6} \exp(-1.16/kT) \text{ cm}^2/\text{sec} \\ \text{and} \\ D_p = 45 \text{ ohm}\cdot\text{cm} &= 0.2 \exp(-2.86/kT) \text{ cm}^2/\text{sec}. \end{aligned}$$

There are 2 figures.

Card 1/1

S/180/62/000/001/004/014  
E193/E383

18.3100

AUTHORS: Kuliyev, A.A. and Movlanov, Sh. (Baku)

TITLE: Coefficient of distribution of selenium during solidification

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no. 1, 1962, 76 - 80

TEXT: The object of the present investigation was to determine the equilibrium distribution coefficient of Se in Te, this information being necessary for successful purification of Te by zone-refining. The experiments were conducted on technical-grade Te, which was first purified by distillation in pure hydrogen, repeated 10 - 12 times, i.e. until no residue was left after the distillation process. It was found that by this means the concentration of both volatile impurities (Se, S, etc.) and those with a low vapour pressure (tellurides, selenides and oxides of various elements) was substantially reduced. Te was zone-refined in evacuated quartz ampules after

Card 1/5

Coefficient of distribution ....

S/180/62/000/001/004/014  
E193/E583

this preliminary treatment. The purity of the metal after 10 passes was determined from the ratio of its electrical resistivities at room temperature and at liquid-nitrogen temperature.

It was established in this way that zone-refined Te contained no more than  $10^{15}/\text{cm}^3$  electroactive impurities. This material was used in the final experiment, in which the distribution coefficient for Se and Te was determined by the radioactive tracer ( $\text{Se}^{75}$ ) technique. Uniform distribution of Se in the starting material was ensured by prolonged heating at a temperature above the melting point of Te. To avoid losses of Se (whose vapour pressure is much higher than that of Te) during zone-refining, this operation was carried out in a vertical furnace, the molten zone travelling in the upwards direction. Distribution of impurities in a zone-refined ingot after one pass is described by the equation:

Card 2/5

Coefficient of distribution ....

S/180/62/000/001/004/014  
E193/E383

$$\frac{C(x)}{C_0} = 1 - (1 - k_+) \exp \left( -k_+ \frac{x}{l} \right) \quad (1)$$

where  $l$  denotes the length of the molten zone,  
 $x$  its distance from the starting end of the ingot,  
 $C_0$  the initial concentration of impurities and  
 $C(x)$  the concentration of impurities at a distance  $x$   
 from the starting end of the ingot after  
 zone-refining.

Since it follows from Eq. (1) that the relationship:

$$\ln \left[ \frac{C_0 - C(x)}{C_0} \right] = f(x/l)$$

is linear, the point of intersection of this line with the ordinate  
 Card 3/5

Coefficient of distribution ....

S/180/62/000/001/004/014  
E193/E383

axis gives a value of the distribution coefficient  $k_+$  corresponding to a given rate  $v$  of travel of the molten zone. It was found by this method that the equilibrium distribution coefficient for Se in Te was 0.34. The thickness of the diffusion layer in the molten zone was found to be 0.46 mm. The effective diffusion coefficient for Se in Te was found to vary between  $10^{-5}$  and  $10^{-3}$  cm<sup>2</sup>/sec, depending on the conditions during solidification. The results of other experiments are reproduced graphically. In Fig. 5,  $C/C_0$  is plotted against  $x/l$ , curves 1 and 2 relating to values of  $C/C_0$  obtained after 1 and 2 passes, respectively. It was seen that the concentration of Se in Te after 2 passes amounted to  $10^{-4}\%$  and was ten times less than the initial value. Finally, it was established that the effectiveness of zone-refining can be improved by conducting it in hydrogen. This is demonstrated in Fig. 6, where the  $C/C_0$  ratio is plotted against  $l$  (mm), curves 1 and 2 relating, Card 4/5

Coefficient of distribution ....

S/180/62/000/001/004/014  
E195/E383

respectively, to results obtained for material refined in evacuated ampules and in hydrogen. This effect is probably due to agitating action of the hydrogen stream, volatilization of Se and formation of hydrogen selenide. There are 5 figures.

ASSOCIATION: Institut fiziki AN Azerbaydzhanskoy SSR  
(Institute of Physics of the AS Azerbaydzhans SSR)

SUBMITTED: May 26, 1961

Fig. 5:

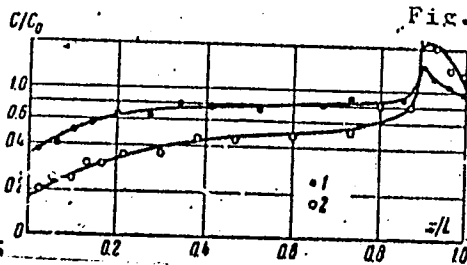
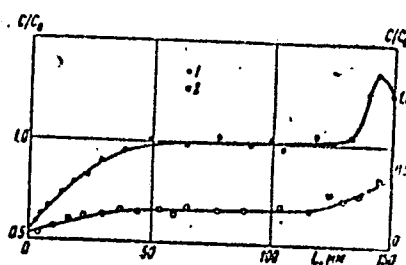


Fig. 6:



Card 5/5

h2039

S/233/62/000/003/007/010  
I045/I242

41-500

AUTHORS: Kazhlayeva, R.I., Kuliyeu, A.A., Ibragimov, N.I.

TITLE: Self-diffusion in polycrystalline tellurium

PERIODICAL: Akademiya nauk Azerbaydzhanskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no.3, 1962, 95-98

TEXT: The authors determined the self-diffusion constant of technical tellurium distilled five times. The tellurium was melted at 460°C in a glass ampoule and recrystallised. The base of the cylindrical sample was ground flat and covered with radioactive  $^{125}\text{Te}$  by vacuum evaporation. The samples were held at temperatures between 360-420°C for 95 to 140 hrs. The distribution of radioactivity in the sample was determined by slicing thin layers and measuring their count. The temperature dependence of the self-diffusion constant is given by  $D = 3.5 \cdot 10^{-4} \exp\left(\frac{-23200}{RT}\right) \text{ cm}^2 \text{ sec}^{-1}$

There are 3 figures.

Card 1/1



S/181/62/004/001/043/052  
B111/B104

AUTHORS: Tagirov, V. I., and Kuliyeu, A. A.

TITLE: Diffusion and solubility of thallium in germanium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 272 - 275

TEXT: The measurement was made with the isotope  $Tl^{204}$  (electron emitter, 2.71 years, 0.765 Mev) and with monocrystalline specimens of germanium (43 ohm·cm). First, the specimens were ground and then etched in boiling perhydrol. The diffusion was studied by removing thin layers and determining the distribution of Tl in them by a measurement of activity with an MCT-17(MST-17) end-window counter. When the concentration of  $Tl^{204}$  on the surface of the specimen is permanently constant, the concentration distribution is given by  $c(x, t) = c_0(1 - \text{erf } u)$ , where  $c_0$  is the solubility of Tl in Ge at a given temperature,  $u = x/2\sqrt{Dt}$ ,  $x$  is the penetration depth,  $t$  is the duration of diffusion annealing, and  $D$  is the diffusion coefficient. A constant Tl concentration on the surface can be achieved by using saturated Tl vapor. Attempts to determine the temperature dependence

Card 1/3

Diffusion and solubility of ...

S/181/62/004/001/043/052  
B111/B104

of the diffusion constant were made between 800 and 930°C. Alloys formed above 930°C rendered measurements impossible. The diffusion coefficient is given by  $D = 1.7 \cdot 10^3 \exp(-3.4/kT) \text{ cm}^2/\text{sec}$ . The diffusion coefficients and the solubility of other elements of the same sub-group in germanium exhibit correlation as in the case of Tl. At ~917°C the solubility of Tl reaches a maximum of  $9.5 \cdot 10^{18} \text{ at/cm}^3$ . The activation energy arising in the diffusion of Tl in Ge is greater than the self-diffusion energy of Ge. The same is true for Cd, B, and Pb. It is therefore assumed that, like in the case of Cd, diffusion proceeds from vacancy to vacancy. G. B. Abdullatinskiy, Corresponding Member AS Azerbaydzhanskaya SSR, and M. G. Shakhtakh-tinskiy, Candidate of Physics and Mathematics, are thanked for discussions. There are 2 figures and 10 references: 4 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: F. M. Smits, Proc. IRE, 46, 6, 1958; B. Goldstein, Phys. Rev., 118, 4, 1960; R. A. Swalin, J. Appl. Phys., 29, 4, 1958; W. C. Danlap, Phys. Rev., 94, 6, 1954.

Card 2/3

Diffusion and solubility of ...

S/181/62/004/001/043/052  
B111/B104

ASSOCIATION: Institut fiziki AN Az. SSR Baku (Institute of Physics. AS  
Azerbaydzhanskaya SSR, Baku)

SUBMITTED: July 1, 1961 (initially)  
September 11, 1961 (after revision)

Card 3/3

S/181/62/004/002/038/C51  
B102/B138

AUTHORS: Movlanov, Sh., and Kuliyeu, A. A.

TITLE: Investigation of the diffusion of selenium and mercury in solid and liquid tellurium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 542-545

TEXT: The tracer method was used to determine the diffusion coefficients of Se ( $\text{Se}^{75}$ ) and Hg ( $\text{Hg}^{203}$ ) in solid and liquid Te. In the first case polycrystalline Te with a concentration of charged impurities of  $\sim 10^{15} \text{ cm}^{-3}$  was heat treated in a vacuum ( $420^\circ\text{C}$ , 27 hr) and put in an ampoule ( $10^{-4}$  mm Hg) with the Se or Hg. Se diffusion was studied between  $320$  and  $440^\circ\text{C}$ , Hg diffusion between  $270$  and  $440^\circ\text{C}$ . The following results were obtained:  $D_{\text{Se}} = 2.6 \cdot 10^{-2} \exp(-28,600/\text{RT}) \text{ cm}^2/\text{sec}$ ; ✓

Card 1/3